Appl. No. 10/767,668
Amdt. Dated 1/31/2005
Reply to Office Action of Jan. 12, 2005

Amendments to the Claims:

Claim 1 (original): A multi-component conductive yarn comprising a primary component and a secondary component:

said primary component consists of at least one elongated filament formed of polymeric material;

said secondary component consists of a blend of polymeric material and carbon bonded with said primary component along its length;

said carbon material of said secondary component comprises carbon nanotubes which constitute up to 20% of said secondary component; wherein,

said conductive yarn comprises no more than 10% carbon nanotubes.

Claim 2 (original): The yarn of claim 1 wherein said polymeric material of said primary component is formed of at least one of polyester, polyamide, polypropylene, polyethylene, PPS and PEEK.

Claim 3 (original): The yarn of claim 1 wherein said polymeric material of said secondary component includes at least 80% of at least one of polyester, polyamide, polypropylene, polyethylene, PPS and PEEK.

Claim 4 (original): The yarn of claim 1 wherein said secondary component comprises a sheath bonded with and surrounding said filament of said primary component.

Claim 5 (original): The yarn of claim 1 wherein said secondary component comprises an elongated filament bonded with said filament of said primary component along its length.

Claim 6 (original): The yarn of claim 1 wherein said secondary component comprises between 0.5% and 50% of said multi-component yarn.

Claim 7 (original): The yarn of claim 5 wherein said carbon nanotubes comprise up to 20% of said secondary component.

Claim 8 (original): The conductive yarn of claim 1 wherein said primary component is set prior to bonding with said secondary component.

Claim 9 (original): The conductive yarn of claim 1 wherein said multi-component yarn is set.

Claim 10 (original): The conductive yarn of claim 1 wherein said primary component comprises a plurality of elongated filaments of synthetic material.

Claim 11 (original): The conductive yarn of claim 10 wherein at least two of said plurality of filaments are formed of different polymers.

Claim 12 (original): The conductive yarn of claim 10 wherein said filaments are set prior to bonding with said secondary components.

Claim 13 (original): A method of forming a conductive multi-component yarn including:

providing a first component comprising at least one elongated filament of synthetic material and setting said filament;

providing a second component consisting of a composition including polymeric resin and carbon nanotubes and further providing that the carbon nanotubes comprise between 0.1% to 25% of the composition;

passing said first component through an extruder die and extruding said second component onto said first component forming a conductive filament along said first component; and,

curing said multi-component yarn.

Claim 14 (original): The method of claim 13 including setting said elongated filament of said first component prior to passing said first component through said extruder.

Claim 15-16 (cancel):

Claim 17 (original): A method of forming a multi-component conductive yarn including the steps:

providing a first component comprising at least one resin of polymer resin;

providing a second component including a composition including a polymeric resin and carbon nanotubes with the carbon nanotubes comprising between 0.1% to 25% of the composition;

providing two extruders and extruding simultaneously said first and second components forming said first and second filaments;

causing said first and second filaments to bond along their length forming a conductive multi-component yarn; and

curing said conductive multi-component yarn.

Claim 18 (original): The method of claim 17 wherein said curing includes passing said bonded first and second filaments between draw rolls and a heater causing said multi-component yarn to be heat set.

Claim 19-20 (cancel)

Claim 21 (new): A method of forming a conductive multi-component yarn including:

providing a first component comprising at least one polymeric resin;

providing a second component consisting of a composition including polymeric resin and carbon nanotubes with the carbon nanotube comprising no more than 25% of the composition;

extruding said first and second components and causing said first and second components to be engaged longitudinally;

curing said extruded and engaged components forming said multi-component yarn.